Appendix L

Detailed Cause Factor Determinations

Detailed Cause Factors

The detailed cause factors are the official cause factors of the mishap. Narrative cause factors amplify them, and HFACS cause factors categorize them for academic analyses but are not the official cause factors of the event. In order to readily update and provide detailed cause factors (Who/What/Why's) to the fleet, the current detailed factors listing is now maintained on the Naval Safety Center's website vice in this instruction. AMB members preparing SIR's are to utilize the listing available at the following address: http://www.safetycenter.navy.mil/aviation/3750/appendixL.htm. These factors are under a continuous state of refinement and the most recently available listing should be downloaded for use during AMB deliberations and SIR generation for each mishap event.

Detailed Cause Factors listed in this appendix comprise an exhaustive tabulation of the way in which people and aircraft have historically interacted to produce mishaps. As such, they provide a menu of the possible Human Factors that could be involved in a mishap. Their use will guide the AMB to full consideration to the "WHY's" of a given event, in addition to a thorough evaluation of WHO and WHAT. A Human Factor narrative cause factor that is accepted in the SIR must be matched to a properly selected detailed cause factor to ensure the completeness and precision of the AMB's conclusions. A properly written narrative cause factor will at a minimum restate the WHO and WHAT in descriptive narrative terms. WHY factors and the ultimate outcome of the act may be included. For example, "THE COPILOT NOT AT CONTROLS FAILED TO BACKUP THE PILOT AT CONTROLS DURING A LOW ALTITUDE MANEUVER/DESCENT DUE TO TASK SATURATION, FIXATION ON TRAFFIC AND RADIO COMMUNICATIONS, LOSS OF SITUATIONAL AWARENESS, AND FATIGUE". Though the endorsing chain will strive to refine and clarify both the detailed and the narrative cause factors, it is the AMB who is in the best position to identify the who/what/why for future inclusion in the Naval Safety Center's data files. The amount of modification required by the endorsing chain often directly reflects on the thoroughness of the AMB's deliberations and on the quality of the SIR.

General Guidelines

One of the major challenges in documenting a mishap lies in comprehensively defining all of the cause factors involved. In the past, one of the major weaknesses of the Naval Safety Center's mishap data file was the inability to determine why the mishap causal factors occurred. In 1989 WHY factors began to be included with detailed cause factors, a process that was substantially refined in 1991, and today we provide the AMB with the opportunity to define numerous WHY's with every cause factor. It is critical that the AMB understand how these WHY factors are to be used. We know that someone (WHO) did something (WHAT). Now we need to know WHY WHO did WHAT. A frequent problem with WHY factors has been a tendency for the AMB, or an endorser, to attempt to restate or describe the WHAT in WHY factor terms, vice describing WHY the WHAT occurred. The following SUPERVISORY factor, taken from an actual draft final endorsement, is offered as an example:

WHO: Supervisory, Organizational, Maintenance Officer.

WHAT: Maintenance Personnel, Supervisory, Failed to Manage / Supervise Personnel.

WHY: Communication/Coordination, Misinterpretation-Verbal, Ambiguous Language.

This tells later readers that the MO had received ambiguous verbal information or instruction FROM someone, resulting in his supervisory failure. However, in this case the MO had actually provided ambiguous verbal instruction TO his own supporting staff, where the ultimate maintenance errors occurred. The appropriate WHY(s) in this case would describe the reason(s) for the MO having provided that ambiguous instruction, such as "Performance, Failure of Attention, General Inattention" or "Psychosocial, Attitude Problem, Over Confident".

The other challenge we now face is ensuring that all cause factors, and not just those most evident or inescapable ones, are identified. The full and complete documentation of the cause factors of a mishap is crucial both to correcting those factors and preventing future mishaps and to accurately understanding the manner in which these mishaps occur and the progress that is made towards reducing their number. It is not uncommon for SIR's to document a WHY factor without fully exploring that WHY as an independent cause factor. For example, if a WHY for an aircrew factor is Psychosocial, Organizational Climate/Culture, then it is likely that an additional supervisory factor needs to

be explored for WHAT: Supervisory, Failure to Provide, (select sub-factor as appropriate).

Another scenario in which cause factors can be left undocumented is when different types of cause factors combine to set the stage for the mishap. If maintenance personnel improperly maintained an aircraft such that it was more prone to abrupt departure under certain circumstances, and a pilot placed the aircraft into those circumstances and then misused the flight controls, there are (at least) three causal factors for the departure and ultimate demise of the aircraft. There is one Aircrew factor: Misused Controls. There is one Maintenance factor: Maintenance Production Failure. There is one Material factor: Aircraft Component/System Improperly Serviced/Maintained (cite component/mode of failure/agent – improperly maintained).

Rules and Considerations

Some additional rules and considerations that apply to Detailed Cause Factors:

1. For any one Cause Factor, there can only be one WHO/WHAT combination. If there is logically another WHO and/or WHAT, then there exists another Cause Factor which must be stated in its entirety. Note that “MISHAP AIRCREW” does not exist as a detailed causal factor; the individual members of the crew must be cited separately with their actions and the reasons for them described as appropriate.

2. For each WHAT element of a Human Factor, there may be more than one WHY.

3. When the description of the Causal Factor Element has sub-choices separated by “/”, the AMB should make the appropriate selection and omit the remainder from the SIR. Example: “Failure to Report/Discipline/Counsel”. Choose the appropriate one; i.e., “Failure to Counsel”.

4. When the Causal Factor Element description has an explanation/clarification enclosed in parenthesis, the AMB should omit the text so enclosed from the SIR. Example: “Improper Use - Miscellaneous Equipment (This implies that…)”. Omit”(This implies that…)”.

5. In the event that a matching Detailed Cause Factor Element does not exist for a particular Narrative Cause Factor,

the use of OTHER followed by a dash “-“ and a plain language explanation is appropriate.

6. The use of a dash, ”-“, followed by a plain language explanation to amplify any Detailed Cause Factor Element is appropriate if it will enhance the transfer of information. Normally, it is not required.

7. Appendix M provides an example of the use of Detailed Cause Factors in completing the SIR.

8. Endorsers need not restate the Who/What/Why on those conclusions where there is concurrence.